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ABSTRACT

A study was done to investigate the relationship between a selected set of personality dimensions and the propensities of supervisors to use varying levels of both positive and negative reinforcements. Data were collected during exercises involving 129 male undergraduate business students carried out in a behavioral laboratory wherein a production-type organization was simulated. Utilizing linear discriminant analysis, various comparisons were made between positive and negative reinforcers in order to classify individuals into different categories of reinforcing behavior using personality measurements as predictor variables. Major findings follow: (1) It is possible to identify certain personality characteristics associated with different styles of supervisory reinforcing practices; (2) those individuals who use highly rewarding methods tend to be willing to take responsibility for their own actions; are more relaxed, tranquil, and unfrustrated; prefer to make their own decisions; are careful and conventional in their approaches; and are more enthusiastic, sentimental, and natural in their outlook on life; and (3) on the other hand, those individuals who rely more on the use of negative sanctions appear to be more socially bold and unihibited in their behaviors; are more suspicious, self-opinionated and careless in their protocol; think more in abstract terms; are less willing to be truthful with themselves; and yet are more conscientious. (EM)

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PERSONALITY CORRELATES OF THE REINFORCEMENT PROPENSITIES OF LEADERS

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This study makes inquiry into the relationship between a selected set of personality dimensions and the propensities of supervisors to use varying levels of both positive and negative reinforcements. Utilizing data from a behavioral laboratory counterbalanced simulation, it applies linear discriminant analysis in order to determine the degree to which the selected predictor variables will predict correct classification into a priori groupings. Comparisons are made between high overall reinforcers and low overall reinforcers, high positive reinforcers versus low positive reinforcers, high negative reinforcers versus low negative reinforcers, and high magnitude reinforcers versus low magnitude reinforcers. The discriminant analysis demonstrates that a strong relationship does appear to exist between these classifications and the predictor variables. Percentage of correct classifications ranged from a low of 71 to a high of 91. Suggestions for future research are offered.

Any leader, supervisor, or manager in a position of influence must necessarily rely upon a variety of resources and techniques in order to achieve the goals of the organization. The use of rewards and punishments is one of the more common means by which a supervisor or manager seeks to modify the behavior of his subordinates.

Numerous personnel studies have investigated the effects of these reinforcements on workers (for example, Huberman, 1965; Cherrington, Reitz, & Scott, 1971) and others have identified the need for appropriate reinforcing practices in organizational situations (Nord, 1969). Relatively little research, however, has focused on the investigation of those variables which determine how a supervisor will reinforce his subordinates; that is, whether he will use positive or negative reinforcements, and in large or small magnitudes.

A basic question exists as to whether or not relatively stable personality characteristics can discriminate between those supervisors who rely on punitive and those who rely on rewarding reinforcing behaviors. Several studies have reported that a supervisor's self confidence significantly affects the types of power used and that low self confident supervisors are more reluctant to punish problem workers (Kipnis & Lane, 1962; Kipnis & Cosentine, 1969) and rely more upon legitimate powers (Goodstadt & Kipnis, 1970). Supervisors who are low on authoritarianism have been found to use more positive than negative reinforcements and rely much more heavily upon the use of economic rather than evaluative reinforcements (Dustin & Davis, 1967), although these results are not conclusive (Larsen, Coleman, Forbes & Johnson, 1972). Hinton and Barrow (In press) report a great reluctance on the part of supervisors to use negative reinforcements even when their own

received reinforcements are highly negative.

The purpose of the present study is to investigate whether personality characteristics will differentiate groups of supervisors with respect to their propensity to use a particular style of reinforcing behavior. It will be specifically determined if individual personality measures can aid in successfully classifying individuals in terms of their overt use of high or low positive reinforcements, high or low negative reinforcements, and high or low overall reinforcements. Linear discriminant analysis has been selected as the appropriate analytical tool since the study concerns identifying those variables which best distinguish between groups that differ in the use of punitive and rewarding behaviors.

Method

The data for this study are derived from an experiment carried out in a business school behavioral laboratory wherein a production-type organization was simulated. The simulation utilized triads consisting of two supervisors (Mr. A and Mr. B) and one subordinate (Mr. C). Mr. C, a subordinate employee of the organization, received orders from Mr. A, identified as the production manager, and Mr. B, identified as the cost control manager. Written instructions were used to present the organization as having a high demand for its product such that Mr. A (the production manager) was under pressure to have as many units produced as possible to meet this demand; his bonuses and job were contingent upon achieving high productivity. The organization, however, was already producing at optimal capacity, and additional production therefore increased unit costs which Mr. B (the cost control manager) had the

responsibility of controlling; his bonuses and job were contingent upon maintaining lower cost levels. Mr. C had the responsibility of determining the level of production for each of sixty production/cost request periods; his salary was totally dependent upon bonus recommendations made by Mr. A and Mr. B in response to his decisions.

Printed cards representing economic reinforcements ranging from +$500 to -$500 in $50 increments could be administered by Mr. A and Mr. B with each production/cost request. It is essential to note that, in order to prevent a situation in which all participants would be able to maximize their positive gain, the payoffs for the two managers were structured in an inverse relationship such that the subordinate could only satisfy one manager at a time with his decision. This assured that managers would be more likely to utilize the full range of economic reinforcements available; indeed, it necessarily presented equal but opposing opportunities for positive and negative reinforcement to be presented.

The 129 male subjects participating in the study were undergraduate business students enrolled in an introductory organizational behavior course. Each subject completed a battery of personality measurement tests several weeks before the simulation began. Cattell and Eber's (1964) Sixteen Personality Factor Test (16PF) was used to measure major personality dimensions. High test reliability (mean about .80) and good construct validity (.85) have been reported by the authors. The IPAT 8-Parallel Form Anxiety Battery was also administered; this test has a reported average construct validity of .60 and an interform reliability of .50. Feelings of security and anxiety about the future satisfaction of one's needs were measured by Maslow's Security-Insecurity Inventory.

Prior to participating in the simulation exercise, subjects were randomly assigned to either the manager or subordinate position, in a ratio of 2 to 1. Subjects were seated at partitioned tables, given written as well as oral instructions, and engaged in the simulated exercise for sixty consecutive decision periods, using written communications only. At the end of the experiment all subjects were debriefed and compensated, as had been promised, on a proportional basis according to their bonus levels earned in the simulation. This research paradigm thus facilitated a concrete measurement of the dependent variables--reinforcing behavior--as represented by the magnitudes of positive and negative reinforcements administered by the managers.

Statistical Method

The focus of this study is ideally suited for linear discriminant analysis; it attempts to classify individuals into different categories of reinforcing behavior using personality measurements as predictor variables. Discriminant analysis is a technique which is specifically designed to classify an observation into one of several or more *a priori* groupings dependent upon that observation's particular individual characteristics. One consideration of critical importance is the condition that all *a priori* groups must be mutually exclusive and the individual can only be a member of one group. Once this qualification is satisfied, discriminant analysis derives a linear combination of the predictor variables which achieves optimal discrimination between the groups. An overall discriminant function, utilizing derived weightings for each predictor variable, is used in conjunction with the individual's actual raw scores on each variable to determine an individual's discrimination

score. This discrimination score is used as the basis for classifying the individual into one of the mutually exclusive groups. The primary advantage of using discriminant analysis (rather than a univariate analysis) is that is simultaneously considers the entire profile of characteristics relevant to each grouping and thus reduces the dangers of redundancy and inconsistency inherent in multiple univariate analyses (Tatsuoka, 1970).

Standardization of the predictor variables before using discriminant analysis enables an assessment of the variables that are of the greatest importance in discriminating the groupings. In addition, success of the predictor variables in distinguishing the groupings is determined by the proportion of the correct classifications into the a priori grouping.

Three preliminary independent analyses were run on the data. Mean values of the economic reinforcements administered over the 60 decision periods by the 84 managers were calculated for their overall values, positive values only, and negative values only.[2] Dichotomized groupings were established for each category by rank ordering the means and assigning the top one-third to the high group and the bottom one-third to the low group. This procedure resulted in the following three reinforcing behavior classifications: high overall reinforcer and low overall reinforcer; high positive reinforcer and low positive reinforcer; and, high negative reinforcer (those managers who used most negative magnitude values) and low negative reinforcer (those managers who used negative reinforcements in magnitudes closest to zero).

Data composed of 23 predictor variables (16 personality dimensions, 6 anxiety dimensions, and one security-insecurity dimension) were stan-

dardized and the BMD7M (Dixon, 1968) stepwise discriminant analysis program was used to analyze the three reinforcing behavior categories independently.

Results

The stepwise discriminant analysis allows for the identification of a subset of the total predictor variables which best discriminate the established groupings. In the analysis of each of the three categories, it was found that using more than ten predicting variables did not significantly add to the discrimination and classification of individuals into their a priori groupings; therefore, results for only ten predictor variables in each category will be reported.

Table 1 indicates that personality variables are indeed successful

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predictor criteria of different types of reinforcing behavior. In the high overall versus low overall reinforcer category, the specified set of predictor variables accurately classified 87% of the high overall reinforcers and 91% of the low overall reinforcers. The common F test was used to determine the overall power of the discriminant equation since the objective was to identify and utilize those variables which best discriminated between groups and those which were most similar within groups. The data show a significant difference [$F(10, 45) = 4.73$; $p < .01$] between the high overall reinforcers and low overall reinforcers, indicating that the individuals in each grouping do exhibit distinguishable personality and anxiety patterns.

Slightly less, although still clearly significant, discrimination occurs when the data are reordered by those individuals who use high or low magnitudes of positive reinforcement. Here the personality variables combined to successfully classify 75% of the individuals into their a priori groupings [$F(10, 45) = 2.39$; $p < .05$] as shown in Table 1. Similar results were found when the data were reclassified by individuals who use high or low magnitudes of negative reinforcement [$F(10, 45) = 3.17$; $p < .01$]; eighty-three percent of the high negative reinforcers and 71 percent of the low negative reinforcers were appropriately assigned by the discriminant equation.

Table 2 reports the personality variables that combined in each

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category to classify individuals according to their reinforcing behavior propensities. Care should be taken not to compare across the three categories due to non-independence of observations between each classification. Data is provided for the "high" grouping only in each category; implicit in the variable description in Table 2 is a direct comparison with the "low" grouping in that particular category.

Table 3 shows the results of the discriminant analysis for each of

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the comparison groups: high overall reinforcers vs. low overall reinforcers; high positive reinforcers vs. low positive reinforcers; high negative reinforcers vs. low negative reinforcers; and high magnitude reinforcers vs. low magnitude reinforcers. The data in this table show the F value of each variable entered, at each step, and the means for

each of the two a priori groupings. It is interesting to note the distinctly different composites which result, again lending support to the conclusion that quite different personality clusters are related to the various reinforcing behaviors.

Discussion

The general findings of this study support the conclusion that it is clearly possible to identify certain personality characteristics associated with different styles of supervisory reinforcing practices. It appears that those individuals who use highly rewarding methods tend to be willing to take responsibility for their own actions and have more confidence in these actions; are more relaxed, tranquil, and unfrustrated; prefer to make their own decisions and are careful and conventional in their approaches; and are more enthusiastic, sentimental, and natural in their outlook on life. On the other hand, those individuals who rely more on the use of strong negative sanctions appear to be more socially bold and unhibited in their behaviors; are more suspicious, self-opinionated and careless in their protocol; think more in abstract terms and are less willing to be truthful with themselves; and yet are more conscientious, even to the point of being penetrating, calculating and shrewd.

Although this study has identified several personality dimensions associated with different modes of reinforcing others, care should obviously be exercised in generalizing these results to a composite assessment. For example, individuals who used high magnitudes of negative reinforcements were found to be more venturesome (uninhibited) but also more humble (accommodating and conforming). Apparent incon-

sistencies such as these make it difficult to develop a valid conceptualization based on this data alone; further research is needed to refine the present findings.

The results of this study do indicate that the use of personality and anxiety level measurements may be very useful in identifying the reinforcing style of potential supervisors and managers. Identification of an individual's long term personality patterns may help a company to assess that person's probable behavioral orientation toward his workers and thus help provide a better fit between the desires and expectations of the workers and the needs of the company for effective supervision.

Finally, all generalizations from a laboratory simulation to a real world situation must be made with recognition of the inherent limitations. For this reason further research should be instigated to validate, in a new sample, the personality factors found in the present study to be associated with different modes of reinforcing behavior. Work should also be done to isolate new variables--both personal and environmental--that help to identify the different reinforcing and managerial modes of supervisors.

References

Cattell, R. B., & Eber, H. W. Handbook for the sixteen personality factor questionnaire. Champaign, Il.: Institute for Personality and Ability Testing, 1602, Coronado Drive, 1964.

Cherrington, D. L., Reitz, H. J., & Scott, W. E. Effects of reward and contingent reinforcement on satisfaction and task performance. Journal of Applied Psychology, 1971, 55, 531-536.

Dixon, W. J. (ed.). BMD biomedical computer programs. Berkeley, Ca.: University of California Press, 1968.

Dustin, D. S., & Davis, H. P. Authoritarianism and sanctioning behavior. Journal of Personality and Social Psychology, 1967, 6, 222-224.

Goodstadt, B., & Kipnis, D. Situational influences on the use of power. Journal of Applied Psychology, 1970, 54, 210-217.

Hinton, B. L., & Barrow, J. C. The superior's reinforcing behavior as a function of reinforcements received. Organizational Behavior and Human Performance (in press).

Huberman, J. Discipline without punishment. Harvard Business Review, 1965, 42, 62-68.

Kipnis, D., & Cosentino, J. Use of leadership powers in industry. Journal of Applied Psychology, 1969, 53, 460-466.

Kipnis, D., & Lane, W. Self-confidence and leadership. Journal of Applied Psychology, 1962, 46, 291-295.

Larsen, K., Coleman, D., Forbes, J., & Johnson, R. Is the subject's personality or the experimental situation a better predictor of a subject's willingness to administer shock to a victim? Journal of Personality and Social Psychology, 1972, 22, 287-295.

Nord, W. R. Beyond the teaching machine: The neglected area of operant conditioning in the theory and practice of management. Organizational Behavior and Human Performance, 1969, 4, 375-401.

Tatsuoka, M. M. Discriminant analysis: A study of group differences. In Selected topics in advanced statistics: An elementary approach. Champaign, Il.: IPAT, 1970.

Footnotes

1. Requests for reprints should be sent to Bernard L. Hinton, Graduate School of Business, Indiana University, Bloomington, Indiana 47401.
2. Overall indicates that all administered reinforcements (both positive and negative) were used in the calculation of the mean values. Case selection was then used to determine the mean value of positive reinforcements administered (values greater than zero) and then negative reinforcements administered (values less than zero) by each subject.

Table 1

Classification Table for Three Categories of Reinforcing Behavior Using Ten Best Discriminant Items

Classification Criterion	Group Classification	# Individuals Classified into High Group	# Individuals Classified into Low Group	Percent Correct Classifications	F Value[1] (df = 10,45
Overall Reinforders	High	24	4	87%	4.73**
	Low	3	25	91%	
Positive Reinforcers	High	21	7	75%	2.39*
	Low	7	21	75%	
Negative Reinforcers	High	23	5	83%	3.17**
	Low	8	20	71%	

*p < .05

**p < .01

[a]This F value is the ratio of the variance between the centroids of the two groups to the variance of the individual discriminant scores within each group.

Table 2

Rank Order of Discriminating Predictor Variables
for Each High (Versus Low) Grouping Category

High Overall Reinforcers	High Positive Reinforcers	High Negative Reinforcers
1. Willingness to Admit Common Faults - these individuals have a willingness to achieve self insight and to "face the music" for the way they behave.	1. Practical - individuals are more careful, conventional and regulated by external realities	1. Venturesome - these individuals are more socially bold, uninhibited and spontaneous.
2. Susceptibility to Embarrassment - these individuals were low on this dimension and thus tend to exhibit lower levels of anxiety.	2. Placid - these individuals are more self-assured, confident, serene.	2. Humble - these individuals are more mild, accommodatin and conforming.
3. Relaxed - these individuals are more tranquil, torpid, and unfrustrated.	3. Tender Minded - these individuals are more dependent, sensitive, and overprotected.	3. Suspicious - these individuals are more self-opinionated and harder to fool.
4. Modesty in Estimating Skills - these individuals have a higher confidence in their own skills and a lower anxiety regarding performance outcomes.	4. Willingness to Admit Common Faults - these individuals have a greater willingness to achieve self insight and to "face the music" for the way they behave.	4. Casual - these individuals are more careless of protocol and follow own urges.
5. Self Sufficient - these individuals prefer own decisions, are more susceptible to following the group.	5. Susceptibility to Embarrassment - these individuals tend to exhibit lower levels of anxiety.	5. More Intelligent - these individuals are brighter and think more in abstract terms.
6. Outgoing - these individuals are more outgoing, warmhearted, participating.	6. Happy-Go-Lucky - these individuals are more lively, gay, enthusiastic.	6. Unwillingness to Admit Comm Faults - these individuals are less willing to be truthful with themselves or to own up to own faults.

Table 2 (Continued)

High Overall Reinforcers	High Positive Reinforcers	High Negative Reinforcers
7. Forthright - these individuals are more sentimental, artless and natural.	7. More Intelligent - these individuals are brighter and think more in abstract terms.	7. Modesty in Estimating Skill - these individuals have higher confidence in their own skills and a lower anxiety regarding performance outcomes.
8. Happy-go-lucky - these individuals are more lively, gay, enthusiastic.	8. Forthright - these individuals are more sentimental, artless & natural.	8. Tendency to Agree - these individuals exhibit more conformity and group dependence.
9. Conservative - these individuals respect established ideas and are more tolerant of traditional difficulties.	9. Tendency to Agree - these individuals exhibit more conformity and group dependence.	9. Conscientious - these individuals are more perseverin steid, & rule bound.
10. Practical - individuals are more careful, conventional, & regulated by external realities.	10. Humble - these individuals are more mild, accommodating & conforming.	10. Shrewd - these individuals are more calculating, world & penetrating.

Table 3

Discriminant Analysis for Four Comparisor Groups

Number of Variable	High Overall Versus Low Overall Reinforcers				High Positive versus Low Positive Reinforcers			
	Name of Variable	F Value	Variable Mean 1	Variable Mean 2	Name of Variable	F Value	Variable Mean 1	Variable Mean 2
1	Willingness to Admit Common Faults	5.810	.281	-.326	Practical/Imaginative	3.231	-.392	.079
2.	Susceptibility to Embarrassment	8.716	-.341	.130	Placid/Apprehensive	2.628	-.162	.238
3.	Tense/Relaxed	6.035	-.247	-.059	Tough Minded/ Tender Minded	2.618	.166	-.128
4	Modesty in Estimating Skills	3.535	-.038	-.219	Willingness to Admit Common Faults	1.867	.279	-.079
5	Group Dependent/ Self Sufficient	3.401	.145	.004	Susceptibility to Embarrassment	3.998	-.209	.057
6	Reserved/Outgoing	1.934	.247	-.197	Somber/Happy-Go-Lucky	2.223	.270	-.115
7	Forthright/Shrewd	2.377	-.061	.227	More/Less Intelligent	2.009	.076	-.118
8	Somber/Happy-Go-Lucky	2.102	.234	-.129	Forthright/Shrewd	1.542	-.299	-.103
9	Conservative/Experi-menting	2.018	-.300	-.177	Tendency to Agree	.813	.094	-.154
10	Practical/Imaginative	2.242	-.209	.135	Humble/Assertive	.918	-.305	-.022

Table 3 (Continued)

Number of Variable	High Negative Versus Low Negative Reinforcers				High Magnitude Versus Low Magnitude Reinforcers			
	Name of Variable	F Value	Variable Mean 1	2	Name of Variable	F Value	Variable Mean 1	2
1	Shy/Venturesome	10.058	.353	-.437	Somber/Happy-Go-Lucky	7.700	.689	-.268
2	Humble/Assertive	3.522	-.228	.397	Casual/Controlled	6.710	-.263	.301
3	Trusting/Suspicious	2.637	.316	-.424	More/Less Intelligent	4.418	-.095	-.164
4	Casual/Controlled	2.843	-.066	.329	Affected by Feelings/ Emotionally Stable	3.484	.433	-.225
5	Less/More Intelligent	1.059	.235	-.115	Susceptibility to Annoyances	2.617	-.147	-.032
6	Willingness to Admit Common Faults	1.868	-.092	.124	Reserved/Outgoing	2.823	.164	-.324
7	Modesty in Estimating own Skills	.851	-.048	.081	Tough Minded/ Tender Minded	1.164	.192	.108
8	Tendency to Agree	1.367	-.004	-.102	Placid/Apprehensive	1.499	-.229	.124
9	Expedient/Conscientious	1.056	-.053	-.274	Emotionality of Comments	1.259	.176	-.223
10	Forthright/Shrewd	2.684	.106	-.032	Susceptibility to Embarrassment	1.186	-.284	.020